

VIA eFILE

PATENT APPLICATION
Docket No. 17653.31A.2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of)
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	Sergei Turitsyn, et al.)
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Serial No.:	10/553,338) Art Unit
) 2613
Filed:	October 14, 2005)
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Conf. No.:	2069)
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For:	DATA FORMAT FOR HIGH BIT RATE)
	WDM TRANSMISSION)
)
Examiner:	Agustin Bello)
)
Customer No.:	022913)

REQUEST FOR PRE-APPEAL BRIEF CONFERENCE

In response to the Final Office Action mailed July 23, 2009, and pursuant to the July 12, 2005, OG Notice regarding the Pre-Appeal Brief Conference Pilot Program, and the February 7, 2006 OG Notice extending the program, Applicants respectfully request panel review and allowance of the rejected claims in light of the Examiner's clear errors discussed below. This Request is being filed concurrently with a Notice of Appeal.

A request for a pre-appeal brief review of rejections set forth in an Office Action is proper when (1) the application has been at least twice rejected; (2) Applicant concurrently files the Request with a Notice of Appeal and prior to an Appeal Brief; and (3) Applicant submits a Pre-Appeal Brief Request for Review that is five (5) or less pages in length and sets forth legal or factual deficiencies in the rejections. *See* Official Gazette Notice, July 12, 2005. Applicants have met each of these requirements and therefore request review of the Examiner's rejections in the Final Office Action for the following reasons.

The Final Office Action rejected all of the independent Claims 1, 6 and 19, and some of the dependent claims under 35 U.S.C. 102(e) as being anticipated by United States patent

application publication number 2003/0165341 applied for by Henning Bulow (the publication hereinafter referred to as “Bulow”). The remaining dependent claims are rejected under 35 U.S.C. 103(a) over Bulow in view of United States patent number 6,654,152 (hereinafter “Jacobowitz”). The rejections are based on two clear technical misunderstandings of the Bulow references, which amount to clear errors of fact upon which the rejections are based. First, the Examiner confuses time domain with frequency domain. Second, the Examiner confuses an eye diagram with a pulse diagram. Although the applicants believe that the Examiner has a misunderstanding of the Bulow reference, the applicants are appreciative of the Examiner Interview in which the Examiner heard the position of the applicants with respect to the Bulow reference.

Independent Claims 1, 6 and 19 each recite a context of a wavelength division multiplexed optical communications system in which a periodic series of optical pulses defining a series of time slots is generated or produced, wherein one pulse appears in each time slot. In this context, the pulses are filtered to produce carrier pulses extending over more than one time slot. For at least some of the carrier pulses, the temporal profile of the pulse has a minimum substantially in the center of each of the time slots adjacent to the time slot for that corresponding carrier pulse. As for Claims 1 and 6, the temporal profile of the corresponding carrier pulse further has an oscillating tail that extends from the minimum into at least one time slot that is even further from the time slot for the corresponding carrier pulse. As for Claim 19, the temporal profile is substantially Sinc shaped extending over more than one time slot.

The Final Office Action falsely asserts that Bulow teaches that the filter CF of Bulow gives rise to a corresponding carrier pulse that having a temporal profile with a minimum substantially in the center of the time slots adjacent to the tie slot for that corresponding time pulse. Specifically, the Final Office Action asserts that this conclusion is justified “as a result of the filter having a sinc transfer function”. The Final Office Action then references paragraph 0039 of Bulow as allegedly supporting this conclusion. The Final Office Action then further states that it is inherent in a filter having a sinc transfer function that the carrier pulse further has an oscillating tail that extends from the minimum into at least one time slot that is even further from the time slot for the corresponding carrier pulse (see top of page 3 of Final Office Action).

However, clear error arises in the Examiner’s interpretation because Figure 4B of Bulow clearly shows a transfer function in the frequency domain, not the time domain. The transfer

function of Figure 4B in the frequency domain does indeed take on a very rough resemblance to a sinc function. However, paragraph 0039 even makes clear that a sinc function in the frequency domain is represented a rectangular impulse in the time domain. Specifically, Bulow states as follows:

The transfer function partly and approximately shows a so-called si-function ($\text{si}(x)=\sin(x)/x$) form. **In the time domain, the si-function represents a rectangular impulse.** (Bulow, paragraph 0039, emphasis added)

Thus, while the Examiner speculates that the filter described in 0039 implicitly results in a sinc-shaped pulse in the time domain, Bulow is clear that it does not. Rather, Bulow is clear that the filter results in “narrow pulses of an input signal SI [being] broadened in the output signal” (Bulow, paragraph 0039, emphasis added), which is exactly what one would expect from a filter that represents a rectangular impulse in the time domain. Specifically, the input pulse would remain the same shape, but simply be narrowed or, in the case of paragraph 0039, broadened. Thus, by confusing a sinc function in the time domain with a sinc function in the frequency domain, the Examiner is led to a clearly false conclusion regarding what Bulow teaches, the false conclusion being based on a clear error of fact.

The Examiner need not speculate as to what the result of the filtering process of Figure 4B and paragraph 0039 would be. After all, “FIG. 4c shows an eye diagram of an output signal SO of the conversion filter CF described under FIG. 4b, fed by a signal described under FIG. 4a” (Bulow, paragraph 0040, first sentence). Here, the Examiner mistakes an eye diagram for a pulse diagram. The Examiner has argued in oral conferences that the recited oscillating tail of the claims equates to the oscillating lines that occur between amplitude 0.8 and 1.0 in Figure 4c. However, here the Examiner demonstrates a misunderstanding of the nature of an eye diagram, and seems to reject the claim based on that misunderstanding.

An eye diagram is constructed by superimposing pulses resulting from a pseudo-random bit sequence. Although the pulses would be in different time slots, for purposes of analysis, they are superimposed to appear in the same time slot in an eye diagram. Accordingly, since the pulses are generated by a pseudo-random bit sequence, the eye diagram will superimpose low to low transitions, low to high transitions, high to high transitions, and high to low transitions. The asserted “oscillating tail” is simply a pulse transition from a high signal to a high signal. It does

not represent the shape of the pulse. The claims recite a specific oscillating tail that relates to a specific pulse, not to a general eye diagram.

Although Figure 4C is an eye diagram, Figure 4C can be used to derive the general shape of a pulse if one knows how to interpret an eye diagram. Specifically, in Figure 4C, there are two distinct forms of a pulse that can be derived, one between times 0 and 1, and one between times 1 and 2. The pulses appear similar to each other. They are substantially broadened versions of the pulses shown in Figure 4A. There is some change in shape (notice the dip in the center of the high state). However, this is probably due to the sinc transfer function of Figure 4b not being an exact sinc function, but only a rough approximation. There is no sinc function shown present in the time domain with respect to any of these pulses.

As for the pulse corresponding to the time slot between time 0 and time 1, one can assume that the pulse is zero before some time point (probably about time minus 0.2 if the pulse can be assumed to take the same form as the pulse corresponding to the time slot between time 1 and 2). From that point moving forward, the pulse would rise gradually until time 0, when the pulse is within the field of view for Figure 4C. At time 0, the pulse has an amplitude of approximately 0.3. At about time 0.3, the pulse is maximized at approximately amplitude 0.9, whereupon it dips somewhat so that at time 0.5, the pulse has an amplitude of approximately 0.8. Being roughly symmetrical about time 0.5, at that point the pulse rises slightly to again attain approximate amplitude 0.9 at approximate time 0.7. Then the pulse consistently declines to approximate amplitude 0.3 at approximate time 1.0. The pulse extends slightly into the next time slot, but declines to approximate amplitude 0 at time 1.2. The pulse between time 1 and time 2 could be described in the same way, except with all references times moving forward by one time slot.

The pulse understood from a proper interpretation of Figure 4C cannot lead to a conclusion that Bulow teaches the recited temporal profile of any of the independent claims. First, there is no minimum substantially in the center of the adjacent time slot. For instance, in Figure 4C, the pulse corresponding to the time slot between time 0 and time 1, does not reach a minimum at time 1.5. Even if it was interpreted to be so, there is no recited oscillating tail. The pulse corresponding to time slot 0 to 1, for example, does not show an oscillating tail that leads from time 1.5 further beyond time 2.0. Rather, the pulses corresponding to time slot 0 to 1 has a zero value in this range at time 1.5 and higher.

Accordingly, the rejections of the independent claims are based on clear errors of fact based on 1) a confusion between time domain and frequency domain, and 2) a misinterpretation of an eye diagram. The combination of these clear errors led to a rejection of the independent claims that is not supportable under any reasonable interpretation of Bulow.

For the foregoing reasons, the Applicants submit that there is a clear errors of fact that render the pending rejections unsupportable. As all of the pending claims rely on a clearly erroneous interpretation of Bulow, the rejections should be withdrawn.

Dated this 17th day of December, 2009.

Respectfully submitted,

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